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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,588	01/23/2001	Hiroshi Niwa	JP9-2000-0068US1 (8728-47)	2738

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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/767,588

Applicant(s)

NIWA ET AL.

Examiner

Prasad R Akkapeddi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 2 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings filed on 01/23/2001 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.
2. The distance D is not defined in the figures.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Claim Objections

4. Claim 2 is objected to because of the following informalities: The recited limitation 'the width of the injection hole into 100 m to 3 mm' is not clear. The units might be wrong. Appropriate correction is required.

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5. Claim 12 is objected to because of the following informalities: The distance D is not defined in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1,6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Saito et al. (Saito) (U.S.Patent No. 6,304,308).

As to claims 1, 6, 9: Saito discloses a liquid crystal display having a first substrate (DSUB) and a second substrate (USUB) which are disposed with a predetermined gap (Figs. 1-7), in which liquid crystal (LC) is sealed in the gap, comprising post structures (SPC-P) for controlling the gap between the first substrate and the second substrate; a sealing material (SL) provided outside a display area for sealing the liquid crystal in the gap, and forming an open injection hole (INJ) for injecting said liquid crystal; an end-sealing material (SL) for sealing the injection hole (INJ) after said liquid crystal is sealed in; and injection hole post structures (Fig. 7) and (col. 9, lines 2-4) provided in an area near the injection hole, for dividing the injection hole into a plurality of portions by

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using the same material as the post structures (col. 7, lines 49-52) and (col. 8, lines 45-48). Saito discloses a strip spacer and the pole spacers are made of a material such as negative resist BPR-113 (col. 7, lines 49-52) and the strip spacer (SPC-S) formed at the outer periphery of the display area for use as a liquid crystal injection port (col. 8, lines 45-48).

Saito discloses a penetration suppressor (sealant SL). Sealants are used for suppressing the penetration of a pollutant generated from the connection portion (INJ) into the display area, as recited in claim 6. Sato also discloses post members (SPC-P) having a pattern (Fig. 4) for controlling the gap, as recited in claim 9.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-5, 8, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito.

a. As to claims 3-5, 8, 10-11: Saito discloses that the injection hole post structures are formed at a position where part of them are in contact with the end-sealing material (Fig. 4) and the height of these post structures is lower than the gap height as can be seen in Fig. 4. The effect of liquid crystal deterioration, thus the charge retention capacity, is fully disclosed in (col. 7, lines 49-60). The

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penetration suppressor is a pair of post structures which is close to the projecting portion and extending from the vicinity of the substrate end in the injection hole to the display area (Fig. 4). The plurality of injection hole post structures forms plurality of rows toward the display area from a position close to the substrate end in the injection hole (Fig. 4). Since the injection hole is filled with end-sealing material and the injection hole post structures are inside the injection hole, they are in contact with the end-sealing material. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the configuration of the injection post structures to eliminate visualization irregularities during displaying of on-screen images, including flutter, moiré, streaking and pixel jitter at certain intensities.

10. Claims 2, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Ohashi et al. (Ohashi) (U.S. Patent No. 5,798,813).

Although Saito discloses injection port (INJ) may be replaced with an array of two or more liquid crystal injection ports (col. 9, lines 2-4), Saito does not disclose the width of these injection holes, nor does he disclose the separation distance of these holes from the display area and a method of manufacture of the liquid crystal display. Ohashi on the other hand, in disclosing a liquid crystal cell and a method of manufacturing the same, discloses several dam seals (36a) in the injection port area (36) having a pitch of 1.5 mm to 3 mm, with a diameter of 0.25mm. The distance between these seals and the display area is shown as 'P' (Figs. 17 and 18) and disclosed in (col. 8, lines 48-50). From Figs 17 and 18 it

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can be seen that the space formed by the plurality of the injection hole post structures (dam seals) (0.3mm) is shorter than the double the distance (P). The method of manufacture is disclosed in Fig. 7 and in (col. 6). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the configuration of the injection post structures minimize the turbulence in a flow of the liquid crystal and thus making the flow uniform and the liquid crystal is filled into the cell gap smoothly and uniformly (col. 8, lines 48-56). Ohashi discloses the hardening of the resin film by ultraviolet rays (col. 5, line 12).

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saito in view of Nakanowatari (U.S. Patent No. 4,820,025).

Saito does not disclose the bending of the seal material at an acute angle. Nakanowatari in disclosing a liquid crystal cell, discloses that the corner portions of the substrates in which the injection hole is formed is cut away at an acute angle, thus the seal material that seals the injection port is also formed at an acute angle (Fig. 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific sealing configuration that is cut at an acute angle to enable the injection hole to come close to the bottom of the tank of the liquid crystal, thereby enabling effective use of an expensive liquid crystal (col. 2, lines 12-26).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

PRR

A
SUPERVISOR

June 2, 2003